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The invention relates to immunogenic preparations or vaccines comprising, on the one hand, a plasmid encoding and expressing a gene from PCV, in particular selected from the group consisting of ORF1 of PCV-2, ORF2 of PCV-2, ORF1 of PCV-1 and ORF2 of PCV-1, and, on the other hand, an element capable of increasing the immune response directed against the product of expression of the gene, which can be a carbomer, a porcine cytokine, e.g. GM-CSF or a cationic lipid of formula

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in which R_1 is a saturated or unsaturated linear aliphatic radical having from 12 to 18 carbon atoms, R_2 is another aliphatic radical comprising from 2 to 3 carbon atoms, andt X is an hydroxyle ou amine group. The cationic lipid can be DMRIE, possibly coupled with DOPE.

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